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very fine green colour is obtained by this means, which is rendered more clear, or more deep, according to the degree of evaporation.

Blue.

Some of the best indigo is pounded in a glass or earthenware mortar, and then four times its weight of concentrated sulphuric acid is poured on it, and when the whole has been well stirred together, the mixture is left at rest for twenty-four hours in a bottle.

To this mixture, nearly black, is added twelve times its weight of rain water, and this solution is filtered through a double linen cloth.

To know the quantity of potash necessary to neutralise the portion of sulphuric acid employed, a small quantity of the latter is diluted in water, and then saturated with potash.

The necessary quantity of potash is afterwards dissolved in water, the solution is filtered and poured into the solution of indigo: this mixture begins to ferment briskly, and it deposits, very slowly, a blue precipitate, extremely fine. The clear fluid is decanted, and the precipitate washed with warm water, until it is absolutely without taste. The precipitate, thusedulcorated, is dried upon plates of earthenware, and in this state it presents a very fine blue colour, which is very improperly called *carmine blue*.

If this precipitate, while yet fluid, be mixed with a solution of gum arabic, a very fine blue liquid is obtained from it.

Account of a Filter used by M. Paul, of Geneva.

(From the Bulletin des Pharmacie.)

This filter is composed of several leaden cylinders, which are two feet high at the most, by six inches diameter. They are closed at the top by a lid, which is forced in, and stopped hermetically. These cylinders, of which there may be twelve, fifteen, or twenty, at pleasure, are filled with sand to a certain height. The sand rests upon a diaphragm, or sieve of lead, which sustains it, and prevents it from stopping the inferior orifice by which the water enters. When the whole is thus disposed, the water that descends from the reservoir by a pipe enters the first cylinder, goes through it, passes into the second by another pipe, rises to a third pipe, which carries it into the third cylinder, where it rises to a cock, which pours it into the basin or reservoir.

This filter is so simple, that when the principal disposition of it is once understood, it can be modified at will, without making any alteration in the effect. Thus, in the place of the leaden casks, large butter-casks may be used, or wooden barrels with hoops; and the reservoir may be a simple cask.

When the water comes out of this filter, it is perfectly limpid; which is a natural consequence, if ten or twelve cylinders are employed, since it has passed by its ascending power through fifteen or eighteen feet of sand; and it is very seldom that the natural sources pass through beds of sand so thick.

This filter may likewise be easily applied to many other purposes.

It may be employed with success in purifying oils that are to be burnt; and by substituting charcoal for sand, it may even be used to clarify the syrup of grapes and beet-root; and, lastly, all liquids that lose their bad properties by filtration, may be passed through this apparatus.

New Method of dyeing Silk of a Yellow Colour, by Lampadius.

(From Journal der Fabriken.)

Into eight parts of pure water, pour, drop by drop, one part of smoking nitrous acid. The mixture becomes heated from 25 to 35 degrees of Reamur. Afterwards take the silk or stuff, which must be previously soaked in water, and put it into the acid solution in such a manner as to completely saturate it, and at the end of an hour and a half it must be taken out, without being squeezed. The silk, having a slight yellow tint, is put, still without squeezing, into a solution, made of one part of pure potash, and eight parts of water. It is often turned in this alkaline solution, in order to saturate it equally: in ten minutes it acquires a fine golden yellow colour, very brilliant and very solid. It is then taken out to be washed in pure water, and when it is half dry, it is pressed.

This process is not expensive, for the nitre can be taken from the lessives employed, and the silk loses none of its solidity.

Yellow colour for dyeing, extracted from the wood of the Mulberry Tree; by M. Bruchman.

(From Magazin der Erfindungen.)

The author prepared for the following

experiments three parcels of woollen strips, which were left for fourteen hours in a solution of alum, without being washed in water.

A bath was then prepared in a boiler, containing two hundred quarts of water and eight pounds of mulberry wood cut in large pieces, which was boiled for an hour until the liquor acquired a yellowish brown colour. In the mean time the strips were washed with water, and each parcel was dyed separately in a bath of the same proportions.

The operation was begun at a temperature of 50 degrees of Reaumur, by increasing the fire at the end of ten minutes, and five minutes afterwards increasing it still more, without, however, pushing it to ebullition. By this method a very fine yellow colour was obtained.

The first parcel of strips treated with alum, took a fine citron yellow; the second treated with salt of tartar was a greenish yellow; and the third treated with muriate of tin took a golden yellow, which surpassed in beauty the two other colours. Thus six pounds of woollen strips were dyed with eight pounds of the mulberry wood.

In order to ascertain whether this wood could be substituted for the yellow Brazil wood, it was employed with a solution of indigo made with sulphuric acid, which had served for making Saxon green. For this purpose a parcel of strips were boiled for an hour in some alum water; they were then taken out, and a linen bag containing eight pounds of the mulberry wood was put into the liquor while still boiling, and the boiling continued for another hour. A very fine straw-coloured yellow was the result: by adding a little indigo dye, and putting the strips in for a quarter of an hour, they acquired a very agreeable sea-green: afterwards, on adding a fresh portion of indigo, the green shade almost entirely disappeared. Then, to saturate the acid, a good portion of white chalk was put into the same bath, and a very fine green colour was obtained.

By means of a fresh decoction of this wood, and by employing the known processes, the author obtained at pleasure all the different shades of green. This wood may even be substituted for Brazil wood in dyeing scarlet, to which it gives a lustre that approaches to a yellow.

and Rubble in forming Banks, Ditches, &c.

(From Magazin der Erfindungen.)

A German agriculturist having to raise a bank in a short time, invented the following method of carrying the earth, in preference to the use of wheel-barrows or carts; which appears very ingenious, and which besides saving time, is less expensive, and requires fewer hands.

He raises two strong posts, leaving between them a space of 30 metres, and stretches tightly from one to the other an inclined cord along which a bucket of earth is to descend; the height of the bucket determines the inclination of the cord, one end of which is attached to the first post, three metres and a half high, and the other to the second post, so that the bucket cannot touch the ground and be arrested in its course.

The inclined cord carries a muffle furnished with a double hook, to which the bucket is suspended; the pulley, the diameter of which is small, should have a very deep groove, in order that it may not turn on the cord when the bucket is raised, and that it may be constantly maintained in a vertical position.

Several pulleys may be placed on the cord, to which any number of buckets may be suspended, provided it is strong enough to sustain them. When the buckets arrive at the end of their course they are unhooked and emptied. In order to take them back again two other posts are fixed, and a cord stretched from one to the other, and inclined in a direction opposite to the first; the muffle is detached and placed on this cord, and as soon as the bucket is suspended on the hook, by giving it a slight push, it runs in the direction of the cord to its destination.

Where it is required to remove the materials to a greater distance, the posts may be placed further off, or several may be fixed at successive distances, so that the buckets may be brought to the desired situation by unhooking them from one side and suspending them from the other. It requires two men to fill the bucket and hook it to the pulley; one is sufficient to unhook and empty it.

This method is economical, because fewer hands are required than when wheel-barrows are used, which are besides subject to the inconvenience, that when the

A new method of transporting with facility and expedition the Earth